

Features

- Modular packaging
- Rack or flush mounting
- Range of function types
- Draw out module
- M4 screw terminals
- Operating & reset coils are available for 12, 24, 32, 48, 110, 125 or 250 Volts DC
- Contacts are of fine silver designed & manufactured to ensure low resistance & high reliability
- Optional gold plated contacts suitable for low currents
- Magnetic blowouts to further enhance contact breaking capability may be specified
- Custom contact configuration
- Custom labeling
- High visibility electro-mechanical flag indication
- Rugged modular construction
- Made in Australia

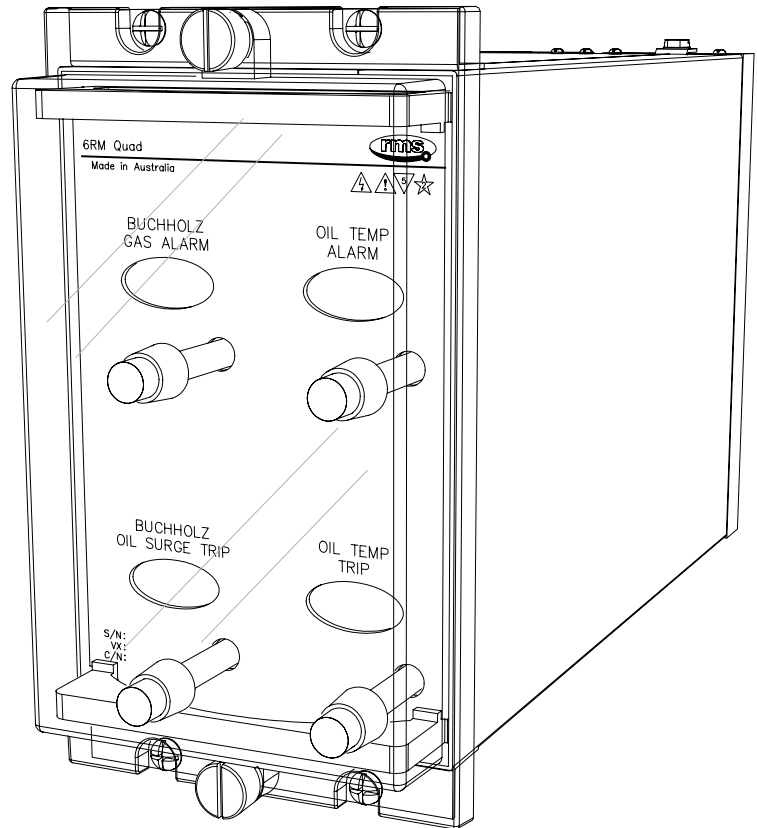
Application

The 6R QUAD range of four element flag relays are particularly suited to transformer protection panel applications where indication & signaling functions are required for events such as:

- Buchholz Gas Alarm
- Buchholz Oil Surge Trip
- Oil Temperature Alarm
- Oil Temperature Trip
- Winding Temperature Alarm
- Winding Temperature Trip

The 6RM QUAD range is a sub set of the popular 6R MATRIX system. While offering all of the benefits associated with the 6R MATRIX, the 6R QUAD comprises four flag elements in a single case providing the following benefits:

- ▶ Lower cost than single or dual relay packages
- ▶ Increased packing density to further reduce panel space requirements
- ▶ Custom flag labeling



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Other Information

Made in Australia

Refer also to the following RMS data sheets for detailed information on product applications & technical specifications:

6R MATRIX
 6R Relay Series;
 6R Technical Data Supplement;
 M Series Case System;
www.rmspl.com.au/6rmat.htm

Specification Process

- ▶ Select the functional elements required to meet system design requirements;
- ▶ Complete the ordering information section on page 6 for each element;
- ▶ Submit to RMS for checking & quotation.

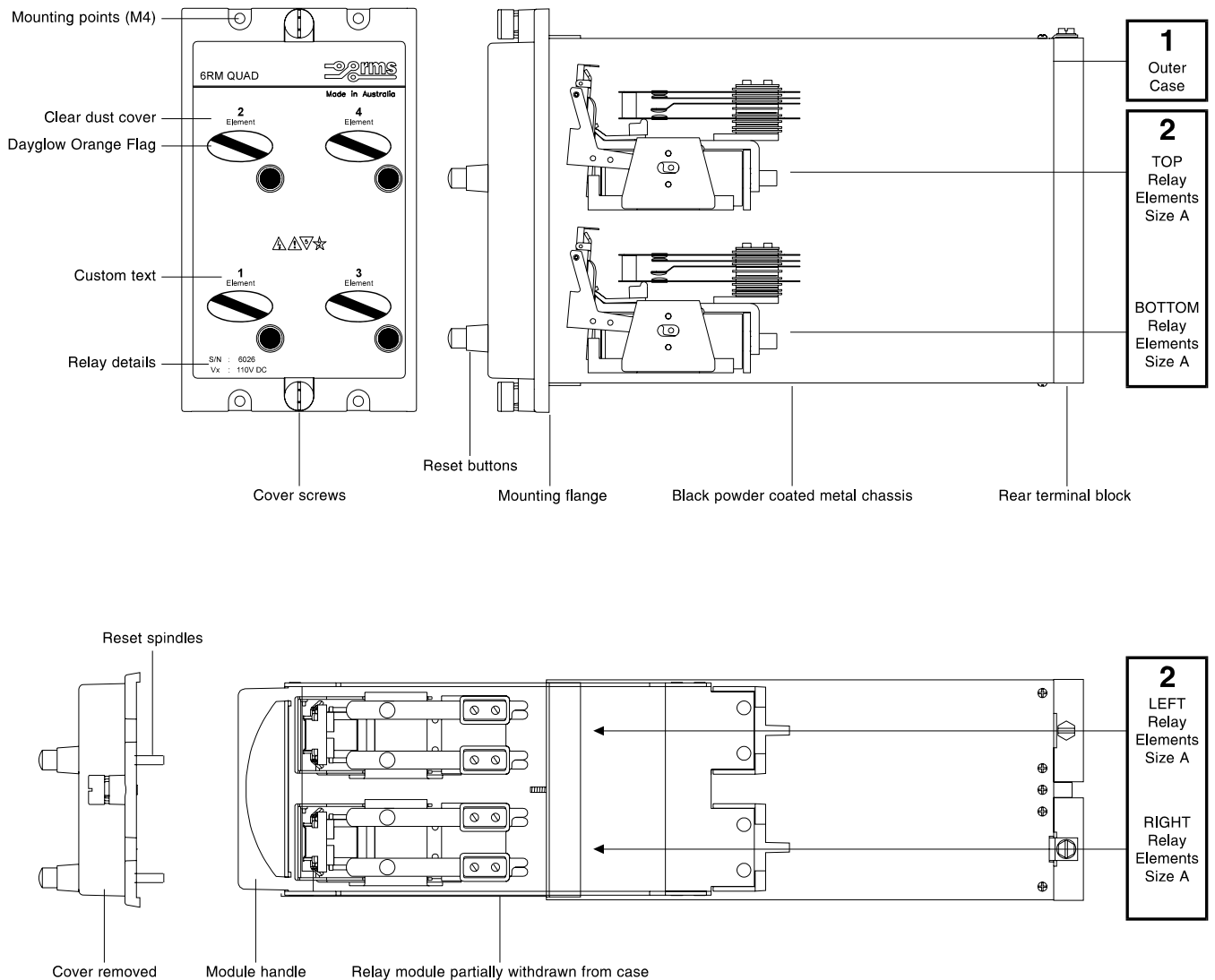
Each 6RM QUAD relay is comprised of the following elements:

- 1. Outer casing**
- 2. Draw out module comprising four flag relays**

The completed relay is shipped from the factory fully assembled but for flexibility, each part may be specified & numbered separately.

The main components & features are depicted below in a size 4M case:

6RM QUAD - Four elements per case



Case Mounting

The following standard features are provided:

- RACK & FLUSH MOUNTING
- DRAW OUT RELAY MODULE
- REAR M4 SCREW TERMINALS

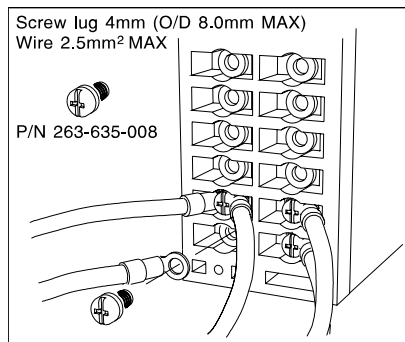
Case Construction

The outer case is manufactured from zinc coated mild steel providing considerable strength & black powder coated surface finish for corrosion protection. Relay elements are mounted on fabricated fibreglass & Acetal components to provide reliable electrical isolation & simple cost effective construction.

Terminal Blocks

High quality moulded terminal block(s) are utilized. The draw out function is made possible through the use of inner & outer terminal blocks, each with silver plated contact fingers to provide high current rating & very low electrical resistance.

M4 screw terminals allow 2x crimp lug connections per point. Space efficient design allows 28 contact points per terminal block.



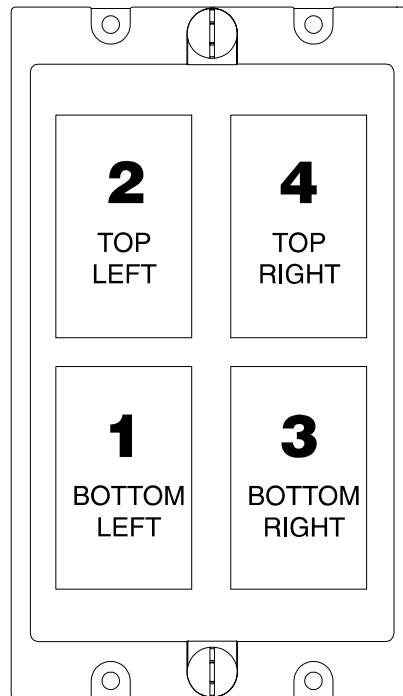
Reset Buttons

Latching relays are provided with front mounted reset buttons.

Flag Indicators

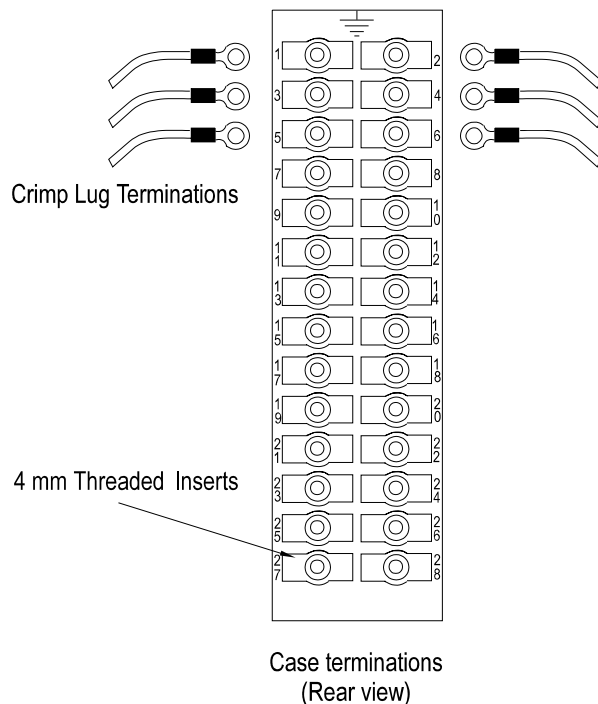
Each relay element is supplied with an operation (target) indicator. The indicator consists of a high visibility solid day glow orange mechanical flag which drops on energisation or de-energisation.

Case System Summary



Size 4M Case

Relay Element Fitment



Application

The operating element for the 6RM QUAD Auxiliary Relays are based on our 6R MATRIX Series relays.

The type 6RM Series elements are low burden auxiliary relays which can be used where a scheme demands several contacts for event recording, alarm initiation, contact logic arrangements, etc.

The relay is supplied fitted with heavy duty contacts & magnetic blow-outs may be optionally specified for switching high DC inductive loads.

Contacts are constructed from silver / copper alloy, shaped & positioned to ensure very reliable, low resistance operation. Over travel of the contacts during each operation causes a wiping action ensuring a clean "make".

Heavy duty contacts fitted with magnetic blow-out are recommended for breaking heavy or highly inductive DC loads. When these are fitted, the number of contacts available may be reduced.

Flag Indicators

Each relay element is supplied with a flag (target) indicator. The indicator consists of a high visibility solid dayglow orange mechanical flag which drops on energisation or de-energisation.

Resets

Resetting of flags & contacts may be either manual at the relay panel or electrical via a remote signal or both. The provision to separately reset the flag & contacts is also possible.

Electrical Reset Function

COMBINED CONTACT / FLAG OPERATION & RESET 6RM210

With these types the flag & contacts operate & reset together. I.e.

When the relay is operated the flag changes state & the contacts latch. Both the flag & contacts are reset if either the reset button is pressed or the electrical reset coil is energized.

COMBINED CONTACT / FLAG OPERATION & INDEPENDENT RESET 6RM211

With these types the flag & contacts operate together but may be reset independently. I.e.

When the relay is operated the flag changes state & the contacts latch. The contacts only are reset if the electrical reset coil is energized or the contact reset button is pressed. In both cases the flag is not reset.

The flag can only be reset if the independent flag reset button is pressed.

Coil Operating Power

Relay elements may be specified with 1W or 2W operating power. 2W coils have the advantage of faster operation for armature operated contacts but obviously generate more heat when continuously energized. A second advantage which is particularly useful in high humidity climate installations is that the thicker gauge copper wire used in 2W coils is less susceptible to corrosion & going open circuit.

6RM QUAD Elements

Operating Times

INSTANTANEOUS OPERATING TIMES (6RM2xx Series)

Contact Stack	Pick up* 1W coil	Pick up* 2W coil	Drop out* 1W coil	Drop out* 2W coil
1 N/O	25	22	34	35
2 N/O	32	25	24	25
3 N/O	35	25	18	19
4 N/O	40	30	14	15
6 N/O	50	35	12	13
1 N/C	25	22	38	38
2 N/C	40	25	25	26
3 N/C	52	35	20	21
4 N/C	62	40	18	19
6 N/C	70	52	13	14
1 C/O	35	22	26	27
2 C/O	45	25	20	21
3 C/O	60	40	13	14
4 C/O	75	45	12	13

Table 1

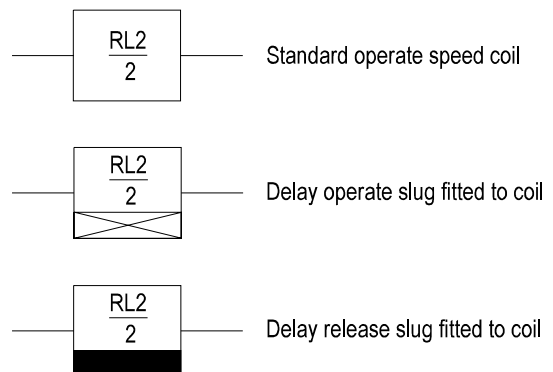
* NOTES ON OPERATING TIMES:

1. Tolerance on stated operate times: +/-10%
2. Operate times are in ms & refer to armature operated contacts at nominal stated coil operating voltage.
3. For flag operated contacts operate time is typically 60ms & is independent of the coil power.
4. 1W nominal coils are used as the default coil specification.

OPERATING TIMES WITH TIME DELAY SLUGS FITTED

DELAY ON DROP OFF Heel end slugs (HES)
Heel end slugs can be specified to provide delayed drop out times of up to 300ms. The more contacts specified the faster the drop out time.

DELAY ON PICK UP Armature end slugs (AES)
Armature end slugs can be specified to provide delayed pick up times of up to 150ms. The more contacts specified the slower the pick up time.



6RM QUAD Versions

- ◆ There are 7 basic 6RM versions without a slug time delay.
- ◆ There are 4 versions with a slug delay release function.
- ◆ There are 7 versions with a slug delay operate function.

All versions are defined by the operation of the contact & flag reset mechanism & may be specified with contact configurations as described in table 2.

6R Element Part Numbers Timing Function			Contact		Maximum Contacts	
					Magnetic Blowouts	Heavy Duty
No Time Delay	Delay Release	Delay Operate	Flag		M or B* 1	M or B* 2
6RM201A	6RM301A	6RM401A	SR	NF	4	6
6RM202A	6RM302A	6RM402A	SR	HR	4	6
6RM203A	6RM303A	6RM403A	SR		4	6
6RM204A	6RM304A	6RM404A	H/SR	HR	1SR / 1HR	2SR / 2HR
6RM206A	-	6RM406A	HR		4	6
6RM207A	-	6RM407A	ER		1	2
6RM210A	-	6RM410A	H/ER		1	2

Table 2

KEY: H/ER - Hand / electrical reset SR - Self reset HR - Hand reset
H/SR - Hand / self reset ER - Electrical reset C/F - Consult factory
M - Make (N/O) contacts B - Break (N/C) contacts NF - No flag

*C/O - Changeover contacts may be specified but EACH C/O contact replaces 1.5 M or B contacts.

EXAMPLE: 6RM206-A1 represents an auxiliary relay with a maximum of 4 heavy duty M or B (Magnetic blowouts fitted), hand reset contacts.

Four of these elements may be fitted in the 6RM QUAD relay.

Rear Terminal Count

Depending on the number of terminals required, the 6RM QUAD can be supplied in either a 4M28 case with 28 screw terminals or a 4M56 case with 56 screw terminals.

Considerable cost can be saved if the number of terminals can be limited to 28 or less.

This can be achieved by limiting the number of output contacts & by wiring the operate coils with a common negative connection (Presuming they are operated from the same DC supply).

Example 1:

6RM202 with 2M contacts per element & common negative on the operate coils equates to a requirement for 21 terminals.
 $(2M \times 2 + 1 \text{ operate}) \times 4 \text{ elements} + 1 \text{ common} = 21$

A 4M28 case may be used.

Example 2:

6RM202 with 6M contacts separate coil connections per element equates to a requirement for 56 terminals.
 $(6M \times 2 + 2 \text{ operate}) \times 4 \text{ elements} = 56$

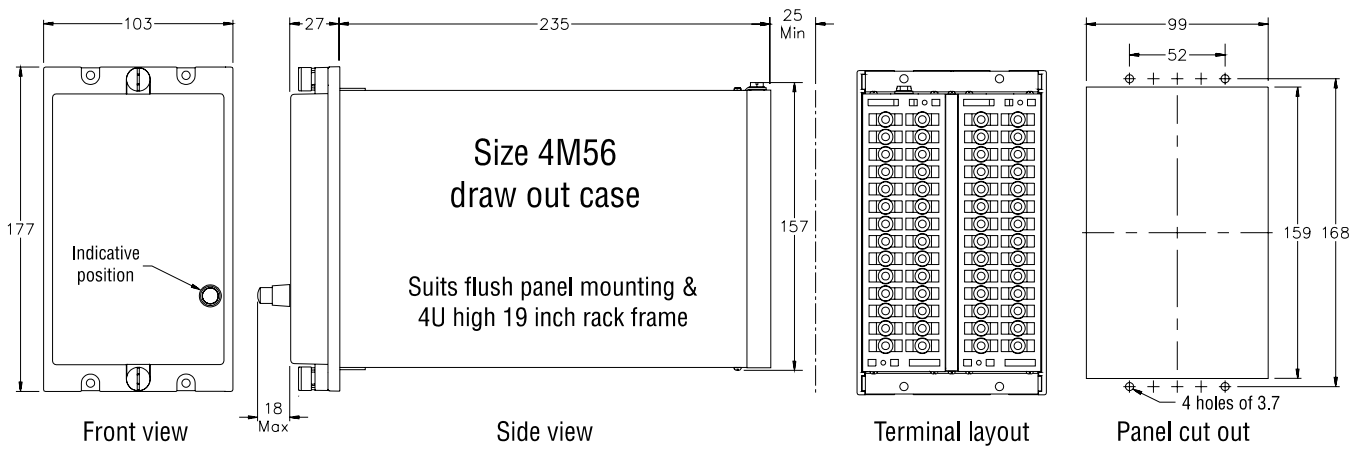
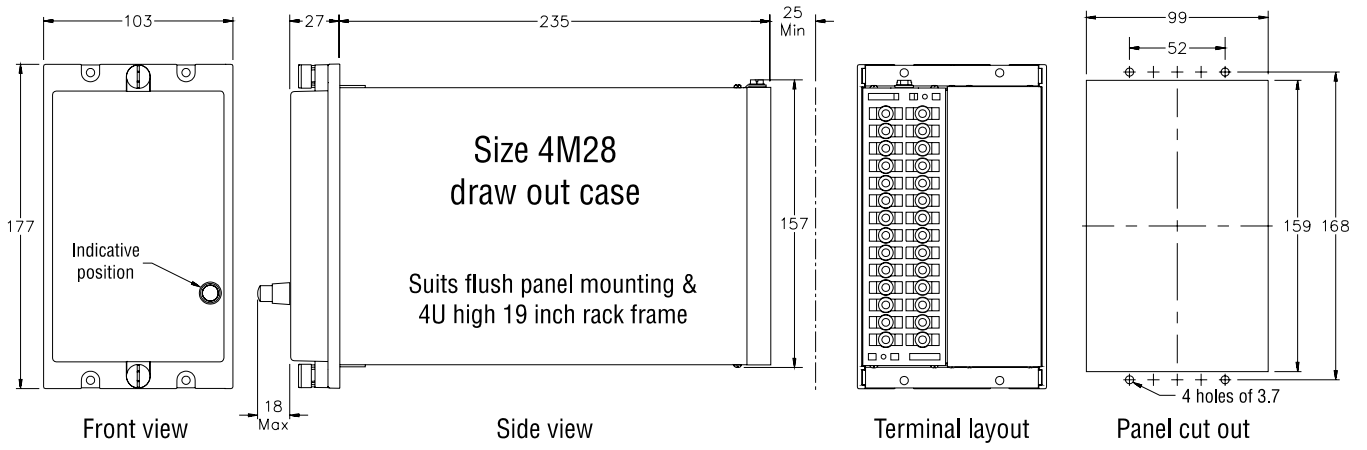
A 4M56 case is required.

M Series Case System

The M Series case range has been specifically designed to meet the demanding & varied requirements for applications in power utility sub-station environments. The standard 4U high 19 inch rack mounting modular configuration simplifies panel design & installation.

Mounting points & overall panel dimensions meet international standards such that the cases may be interchanged with other similar types available on the market.

The M Series case range supercedes the previous D & E Series models.



Technical Data

AUXILIARY INSULATION WITHSTAND

In accordance IEC 255-5:
 2KV RMS between all terminals & all terminals & frame.
 1.2/50 5KV impulse between all terminals & all terminals & frame.

TERMINAL RATINGS

30A continuous
 200A 3s

M Series Case Accessories

The following accessories are available separately:

4M800K1	4U High rack mount frame
4M802K1	Size 2 Blanking Plate *
4M803K1	Size 3 Blanking Plate *
4M804K1	Size 4 Blanking Plate *
4M806K1	Size 6 Blanking Plate *
4M808K1	Size 8 Blanking Plate *

* Custom engraving is available.

290-406-151	Relay mounting screw kit (4 screws)
290-407-153	M4 terminal screw kit with captive lock washers (14 pieces per kit)

290-407-154	Stud terminal kit (28 terminals per kit)
290-407-158	Earth bar to suit M Series Cases mounted in a 19 inch rack mount frame (4M800K1)

Termination Ring Lugs – Refer M Series Case data sheet:

290-407-160	Supergrip 0.5-1.5mm ² lug kit (28 lugs / kit)
290-407-161	Supergrip 1.5-2.5mm ² lug kit (28 lugs / kit)
290-407-162	Supergrip 2.5-6.0mm ² lug kit (28 lugs / kit)
290-407-163	Braided ring 0.5-1.5mm ² lug kit (28 lugs / kit)
290-407-164	Braided ring 1.5-2.5mm ² lug kit (28 lugs / kit)
290-407-165	Braided ring 2.5-6.0mm ² lug kit (28 lugs / kit)
290-407-166	Stud type ring lug kit (28 lugs per kit)

CASE TYPE

- 4M28 Size 4 28 terminals
- 4M56 Size 4 56 terminals

SEMI PROJECTION MOUNT KITS

Semi projection mount kits are available for the size 2M & 4M case. Each kit consists of:

- 1 x semi projection mount top spacer (Acetyl)
- 1 x semi projection mount bottom spacer (Acetyl)
- 2 x black powder coated aluminium side panels
- Mounting screws

Semi projection mount kits are available in four (4) standard sizes for the size 2M and size 4M cases as follows:

Size 2M Case		Size 4M Case	
4M820K1	50mm projection	4M821K1	50mm projection
4M820K2	75mm projection	4M821K2	70mm projection
4M820K3	100mm projection	4M821K3	100mm projection
4M820K4	125mm projection	4M821K4	125mm projection

Case Mounting Screws

RELAY PANEL/RACK MOUNTING SCREWS
P/N 290-406-151A
 4 X M4 self threading screws
Use for RMS "D", "E" & "M" Series relay cases

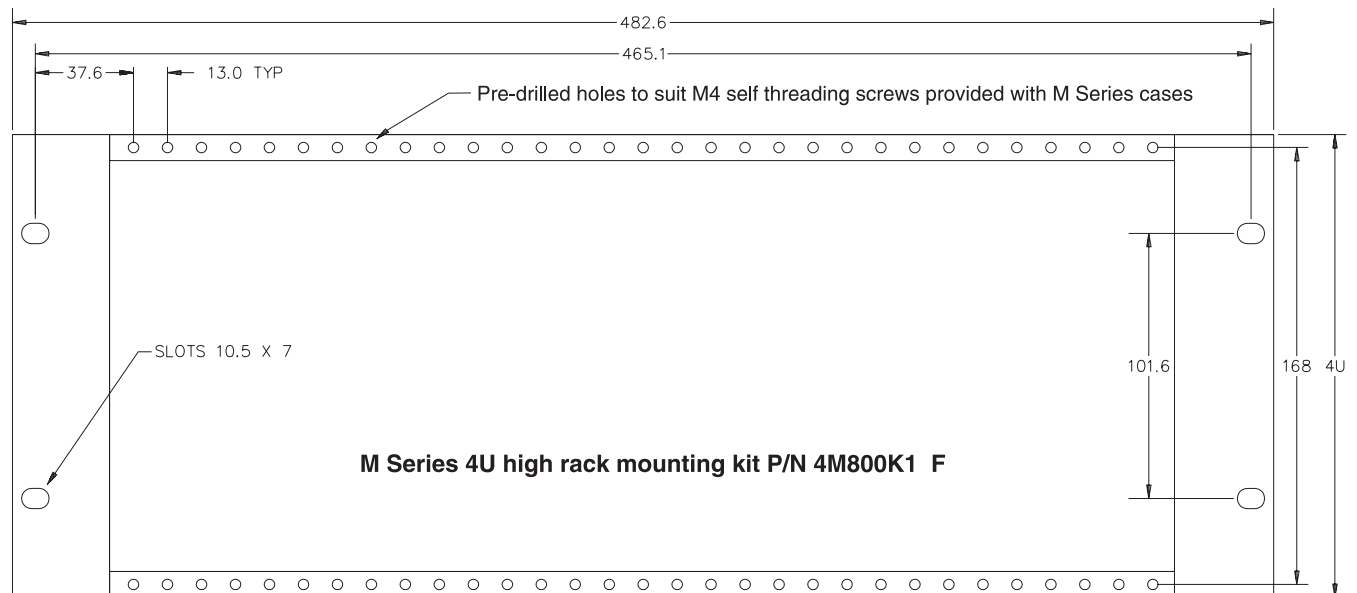
Assembly Details (mm)

	a	b
1-2	3.6	
2-3	3.7	

b (Drill)

M4 self threading screw 290-014-110B Mild steel relay mounting panel

M Series cases may be flush mounted to mild steel panels up to 3mm thick using the M4 self threading screws provided with the case. Panel mounting is simplified due to the location of the fixing screws at the front face of the relay. Alternatively the cases may be 19 inch rack mounted using a 4U high sub rack. The M4 self threading screws are suitable for application with the RMS type 4M800K1 sub rack.



Australian Content

Unless otherwise stated the product(s) quoted are manufactured by RMS at our production facility in Melbourne Australia. Approximately 70% of our sales volume is derived from equipment manufactured in house with a local content close to 90%. Imported components such as semi-conductors are sourced from local suppliers & preference is given for reasonable stock holding to support our build requirements.

Quality Assurance

RMS holds NCSI (NATA Certification Services International), registration number 6869 for the certification of a quality assurance system to AS/NZS ISO9001-2000. Quality plans for all products involve 100% inspection and testing carried out before despatch. Further details on specific test plans, quality policy & procedures may be found in section A4 of the RMS product catalogue.

Product Packaging

Protection relays are supplied in secure individual packing cardboard boxes with moulded styrene inserts suitable for recycling. Each product & packing box is labeled with the product part number, customer name & order details.

Design References

The products & components produced by RMS are based on many years of field experience since Relays Pty Ltd was formed in 1955. A large population of equipment is in service throughout Australia, New Zealand, South Africa & South East Asia attesting to this fact. Specific product & customer reference sites may be provided on application.

Product Warranty

All utility grade protection & auxiliary relay products, unless otherwise stated, are warranted for a period of 24 months from shipment for materials & labour on a return to factory basis. Repair of products damaged through poor application or circumstances outside the product ratings will be carried out at the customers expense.

Standard Conditions of Sale

Unless otherwise agreed RMS Standard Terms & Conditions (QF 907) shall apply to all sales. These are available on request or from our web site.



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